

Non-Lethal Defense III

Dual Use Technology:
An Implementation Plan

*Non-Lethal Technology
for our Era and Culture*

by

Matt Begert and Duane Preimsberger

Dual Use Technologies: An Implementation Plan

To the policemen in the midst of an altercation between the 18th Street Gang and the Bloods, and to a soldier positioned between an angry Croat and Serbian mob, the situation at hand looks very, very similar. And, significantly, in both scenarios, the need for technology to deal with that dilemma exceeds the technology available.

The mob scene is very different from the force-on-force scenario that the US has built and maintained to oppose the Soviet Union. Several scholars suggest that "winning" the Cold War was a result of America's technological edge. But now we are getting indicators that the technology is focused on the wrong type of conflict and war.

Winning the Cold War and dominating the battlefield in the Persian Gulf war established the US as a premier force in a general war where tanks, ships and planes dominate the landscape. But its becoming evident that the battlefield landscape is changing and that general war force, and the technology supporting it, doesn't do well on the new playing field. This playing field is starting to look muddy.

"We can expect those opposed to our interest to confront us at home and abroad—possibly in both places at once—with asymmetrical responses to our traditional strengths."ⁱ

Translated, that means that no opponent, be he criminal, terrorist or thug is likely to let the US fight its type of engagement.

"The idea that some sandlocked strongman is going to jerk Uncle Sam's beard and then invite him to a rematch at Desert Storm—do you believe that is going to happen? Who would do that?" said General Krulak, Commandant of the Marine Corps, in concurrence with the Defense Panel's view.ⁱⁱ

So in a nutshell, an asymmetrical threat means that the bad guys aren't going to want to fight the way we do. More than likely, they won't play by our rules and they won't play fair. And that may mean that the way of fighting and the focus of technology are off in the wrong direction. We may need to get both on a different track, and very quickly.

In the fall of 1993, US Army Rangers were faced with the difficult mission of capturing Somali militia leader Mohamed Farah Aideed hiding in the crowded city of Mogadishu.

"We're not cops and we're having to adopt war-fighting technology for a fugitive hunt in a city of about a million," said one US officer.ⁱⁱⁱ

Another US official described the situation this way: "We played by our rules and he doesn't play by our rules. He surrounds himself with women and children and stays in the most crowded part of the city. So by setting these rules we limited the effectiveness of our force."^{iv}

Two parts of this puzzle deserve attention. On the one hand, estimating the situation and the opponent and on the other, bringing the technology to bear, effectively, on that opponent. But who is the opponent, how does he fight, and why?

Back to the introductory dilemma for the answer. There are only two differences: Police man and soldier as operators; domestic versus foreign geography. Both our operators face a situation where a continuum of force is more effective than the choice between "doing nothing" and lethal force. Both operate in an urban environment with a benign populace mingling and muddying the "battlefield." Though the motivations of the mobs may be different, to our first responders, the situations, and the necessary responses are not different. . But both could use effective non-lethal technology immediately.

This looks a lot like what this nation's law enforcement and corrections officers deal with daily. But what are the similarities and differences?

Our domestic law enforcement (LE) exists with permanency. Military missions of peacekeeping and presence are designed to be temporary. The end-state of LE is the maintenance and/or restoration of order. The military mission end-state is either end (of mission), change (of mission) or departure (including departure under pressure). It involves ingress, time to establish authority and a posturing to hand off the maintenance of order to a legitimate political authority. Presently, this military mission involves commitment of forces to external citizens/nations for a stated US national interest. However, if predictions for the need for "homeland defense" are accurate, that may change.^v Certainly the creation of the USMC ChemBio Incident Response Force and the DOD terrorism training for major US cities is an indicator that we are acknowledging that threat.

Crime in our country, because of its potential threat, is more personal than a CNN report of atrocities outside our borders. Yet the "political" motivation of actions by a Saddam Hussein are arguably similar to the felony evil of a drug dealer or domestic terrorist. The difference may be no more than the geography.

The tribulation of a peace officer chasing a criminal across city, county or state political boundaries may be frustrating, but long term cooperation of the involved agencies lessen this obstacle. In the military mission of peacekeeping/presence, that cooperation is non-existent or tenuous at best.

Success of the military mission is often opposed by a non-state soldier (no uniform, not bound by Rules of Engagement and able to blend into the populace). LE calls him a criminal. But terrorism as war and terrorism as a crime have the same consequences. To the first responder, whether a soldier or police officer, the cause is less an issue than the consequence. The consequences look remarkably similar.

In this murky world where the FLOT (forward line of troops) can't be drawn on a map, where soldiers don't look like soldiers, and where political commitment looks a lot like hate, greed, revenge and felony evil, the right non-lethal technology could go a long way in helping to shape and control this "battlefield" where restraint, behavior modification and the destruction of relationships and bonds is more important than killing.

Looking a little closer at these emerging military missions, we can see more similarities to the challenges of LE. The environment is urban and the mission is difficult to define. The goal of the strategy is to "not lose" rather than win. Conflict is intrastate and there is no conventional enemy. Opposing leaders are charismatic rather than authoritarian, which may make the opposing

"force" more unpredictable. The objective is indefinable/undetectable and the opponent actions may be as much spontaneous as planned. Restraint is more important than boldness.

In his introduction to "The Small Wars Manual of the United States Marine Corps of 1940," Ronald Schaffer points out that what was considered a "small war" in 1940 is quite similar to the peacekeeping mission of today.

"The Marines' own psychology would have to be different from that of regular wars. In a conventional conflict, one aroused courage in troops by instilling hatred of the enemy. In a small wars, it would be necessary to be ruthless and firm at times; yet the Marines would be dealing with the native population as well as the enemy (though the distinction between the two would not always be clear) and their relations with the people had to be tolerant, sympathetic and kind."^{vi}

Operations in this environment are manpower intensive, are very personal, require constant situational assessment, are bound by rigid rules of engagement/force policies and lack a conventional hierarchical command and control architecture. The situation requires a higher intensity of training of the individual soldier or policeman. Tactical pull rather than strategic push drives the never-ending operation. CNN's presence and opinion affect both environments.

So should we not apply our technical expertise to this differing style of conflict? If a strong technical edge helped in the Cold War struggle, it should not be difficult to do once we fully recognize that the problem is different.

The race to build a capability to technically support a system integration of non-lethal weapons and tools will be interesting and challenging. Yet the potential synergy of DOD lab and research capability, the search for equipment of military utility and the practical, hands-on feedback contribution of LE has great potential. The challenge is to connect the dots between the LE base of experience, military operational needs and the technology focus.

The present orientation of Department of Defense (DOD) Research and Development (R&D) labs and Research Centers, toward force-on-force attrition warfare, cannot successfully address the challenges of non-lethal weapons development. Current weapons system programs are complicated, expensive and require years of development to complete. These programs have layers of management and administration. This structure is unsuited to a change in technology required by our new era and culture.

Yet successful examples of responsive technical organizations like the Lockheed Skunkworks have a surprisingly straightforward set of principles that endure and work, resulting in products, such as the SR-71 aircraft, that are designed and built ahead of their time. Can this style of entrepreneurial operations be applied to military labs/research centers while avoiding the ponderous over-management characteristics like many of the larger weapons programs?

Technology support might best work like this: Build a sufficiently knowledgeable technical group to address the challenges and have them review the history of the problems and the solutions of the past. The initial focus of effort should be to look at systems of the past both good and bad and examine why those unaccepted systems were rejected.

Questioning why a system was rejected is important. Henry Petroski, in his book, "The Evolution of Useful Things," explains that "...function follows failure," observing that the dissatisfaction with current tools, equipment and inventions inevitably leads to something more useful or functional.^{vii}

It is essential that concepts drive the technology and not the other way around. Our sharp, innovative organization, then, is built around those concepts and the need for non-lethal weapons and tools. Organizational leaders are inventors, scientists, engineers, innovators and technicians, and their focus of effort is on identification and production of new, useful products.^{viii} Cooperative effort among inventors and users is essential.

The road from concept to production and use is fraught with dangerous pitfalls that have to be avoided. As the organization matures, there will be an increased emphasis on management. That should be minimized. Micro-management is a showstopper. Involvement of operators, which in the non-lethal technology example would include law enforcement and military representatives, must be continual and frequent. The differing points of view would actually assist development.

Avoid a stack-up of negatives and encourage new ideas while at the same time avoid trying to beat life into a dead horse. If there is no chance for new ideas to grow into prototypes, there will be no continued development. Actually, just building something with promise will accelerate development, and using it reveals the human factors that are not obvious in a paper study or model/simulation.

A current example is the reexamination of the M234 riot control launcher and projectiles invented and type classified in the 1970's. It remained shelved, unused and largely unexamined until its favorable review by the US Attorney General's Report on Less-Than-Lethal Weapons of 1987.^{ix} But it again remained unevolved until a resurrection of interest in 1996. The potential of this technology, with modification and next generation development, is at least now being examined and tested.

But even this example of renewed interest reveals the weakness: There has been little continuity in less-than-lethal development. There have been no maestros of technologies that have perpetuated a continual stream of corporate memory. Rather, it has been a chronology of fits and starts, with changes in services leading the programs. There has been no coordinated effort to continually evaluate kinetic energy impact devices, chemical delivery systems, acoustics, high-powered microwaves, lasers and other technologies in light of concepts and requirements.

The advantage of re-examining the M234 include its non-lethality characteristics supported by extensive biomedical testing, done at military research facilities, before it was type classified by the US Army. With this jump-start, it has the potential to lead to a next generation device or point the way to a new idea. Gene Stoner, the creator of the M-16, may well have spoken accurately when he, in 1970, described the M234 system as 20 years ahead of its time.

Every user requirement cannot be satisfied. The perfect product never comes. Select items and systems that can support the requirement, support their development, and get on with it.^x And in the meantime, come up with new concepts; examine them and see if we can apply compatible technology. Examine ways to deliver, dispense chemicals and launch projectiles, as

examples. In doing this, we should consider dual use non-lethal technology because it fits our era and our culture. One of the attractive things of dual use is that it goes both ways: Military development to LE use and LE use to military concept and development.

Like it or not, the manner and scope of warfare is in transition and throughout time this has always been the case and those best able to deal with the changes usually came away the winner. As we look back in history we find that the major changes in warfare almost always deal with technology, not only the tools used; for example, bronze to iron, catapults to cannon and from horse cavalry to tanks. Change also included the manner of implementing the use of those tools as well as the tactics of the battlefield which today differ somewhat from those used by Hannibal or US Grant.

Today, our first responders, be they soldiers, sailors, airmen, Marines, coastguardsmen, peace officers, firemen or any combination thereof, again find themselves in a transition, at a time when both tools and tactics are changing. For many it is the best of times and the worst of times. Best, because we can face a dilemma and cause our forces to seize the opportunity to change and do it wisely and beneficially. Worst, because change is an event feared and avoided. However, in order to come away a winner, we must step up to that need for change given our environment and the tactics of our foes.

To some, the circumstances parallel a baseball game. It's the bottom of the ninth, score is tied, two outs and a full count. As Casey Stengel would say, "Hit me a home run, it ain't time to bunt."

ⁱ Anderson, Jon R, "Pushing toward a Brave New World/Experiments with Brash Names Like 'Hunter Warrior,' 'Silent Fury' and Ring of Fire' are Defining a New Era that Could Turn the Military Upside Down, Navy Times, January 5, 1998.

ⁱⁱ Ibid.

ⁱⁱⁱ Lancaster, John, "Mission Incomplete, Rangers Pack Up Missteps, Heavy Casualties Marked Futile Hunt in Mogadishu, The Washington Post, October 21, 1993.

^{iv} Ibid.

^v National Defense Panel, "Transforming Defense, National Security in the 21st Century, December, 1997, Arlington, VA, pp28.

^{vi} Schaffer, Ronald, "The 1940 Small Wars manual and the "Lessons of History," Military Affairs, April, 1972, pp 46-51.

^{vii} Petroski, Henry, "The Evolution of Useful Things," Vintage Books, 1992.

^{viii} Flatau, Abe, "Lecture to Advanced Ordnance Officers' School," Aberdeen Proving Grounds, Md, May, 1980.

^{ix} Sweetman, Sherri, "US Attorney General's Report on Less-than-Lethal Weapons," March 1987.

^x Watson Watt, the British inventor of radar, described it this way: "Best never comes, second best takes too long; pick the third best, the one that satisfies the requirement in the least amount of time, and get on with it." It became known as Watson Watt's Law of Third Best.